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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,716	01/09/2001	Holly Magna	PF-0420-2 DIV	8687

27904 7590 04/07/2003

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EXAMINER	
DECLOUX, AMY M	
ART UNIT	PAPER NUMBER
1644	

DATE MAILED: 04/07/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/757,716	Applicant(s) MAGNA ET AL.	
	Examiner Amy M. DeCloux	Art Unit 1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-49,51,53-62 and 65-68* is/are pending in the application.

4a) Of the above claim(s) *45,47,61 and 62* is/are withdrawn from consideration.

5)☒ Claim(s) *65* is/are allowed.

6)☒ Claim(s) *46,48,49,51,53-60 and 66-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 January 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Applicant's amendment filed 1-22-03, Paper No. 10, is acknowledged and has been entered.

Drawings

The corrected or substitute drawings were received on 1-22-03. These drawings are acceptable.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

MAINTAINED A) Claims 46, 48-49, 51, 53-60 and newly added claims 66-68 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

Response to Arguments

Applicant traverses the rejection on the grounds that given Applicant's disclosure of SEQ ID NO:1, a skilled artisan would recognize variants that are at least 90% identical SEQ ID NO:1, and that it would be routine to determine whether such a variant had nucleotide phosphorylase activity by using the disclosed nucleotide phosphydrolase assay, and that accordingly, the specification provides adequate written description of the claimed antibodies which specifically bind to the recited polypeptide variants of SEQ ID NO:1. Applicant also contends that it would be routine for one of skill in the art to determine whether any particular fragment of SEQ ID NO:1 had nucleotide phosphohydrolase activity using said assay, and it would be routine for one of skill in the art to determine whether any particular fragment of SEQ ID NO:1 had immunogenic activity. While the examiner agrees with the Applicant that it would be routine for one of skill to recognize polypeptide sequences having at least 90% identity to SEQ ID NO:1, the instant disclosure of SEQ ID NO:1 does not provide adequate written description of a polypeptide sequence that has 90% identity to SEQ ID NO:1 and also has the asserted utility of nucleotide phosphorylase activity. The examiner notes that though the claimed invention is directed to antibodies and not cDNA, the principle of the following still holds for the genus of said antibbodies: a description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. *Regents of the University of California v.*

Eli Lilly&Co., 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). First the examiner notes that the specification does not exemplify a single specific example of an antibody that specifically binds to said variant or said fragment of SEQ ID NO:1. Therefore, the written description of antibodies that specifically bind said generic fragments or variants of SEQ ID NO:1 is not met based on describing a representative number of species. Second, it is noted by the examiner that the structural basis of the recited functional limitations common to the claimed genus of fragments or variants is not disclosed, and thus one of skill could not readily distinguish between the genus of antibodies that specifically bind to fragments and variants of SEQ ID NO:1 that have nucleotide phosphorylase activity from the genus of antibodies that specifically bind to fragments of SEQ ID NO:1 that do not that have nucleotide phosphorylase activity, nor could one readily distinguish between the genus of fragments of SEQ ID NO:1 that have biological activity from the genus of fragments of SEQ ID NO:1 that do not have biological activity. Therefore, the instant disclosure of SEQ ID NO:1 does not provide written support for the claimed genus of antibodies that specifically bind to said fragments and variants of SEQ ID NO:1 that have nucleotide phosphorylase activity.

Applicant further contends that in contrast to the situation in Lilly, the instant claims define the polypeptides bound by the claimed antibodies in terms of chemical structure rather than functional characteristics. However as noted above, the disclosure of SEQ ID NO:1 does not define the structural basis for the asserted and/or recited functional attributes of antibodies that bind the generically recited fragments and variants of SEQ ID NO:1.

Applicant further contends that Brenner et al teach that 30% identity is a reliable threshold for establishing evolutionary homology between two sequences. However it is noted that the rejection is not based on the evolutionary homology between sequences but whether one of skill can envision the claimed genus of antibodies which bind polypeptides which have the disclosed asserted function of having nucleotide phosphorylase activity, from those that don't. Applicant further contends that recombinant DNA technology has progressed since the date of the Lilly case, and therefore the present inventors were in possession of the claimed invention. However it is noted that Vas-Cath makes clear that the written description provision of 35 USC 112 is severable from its enablement provision. (See page 1115.)

(MAINTAINED) Claims 46, 48-49, 51, 53-60 and newly added claims 66-68 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an antibody directed to the polypeptide comprising the amino acid sequence of SEQ ID NO:1, a composition comprising said antibody and a method of making said antibody, does not reasonably provide enablement for an antibody which specifically binds to a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO:1, to a biologically active fragment of a peptide having an amino acid sequence of SEQ I DNO:1, and to an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1, a composition comprising said antibody and a method of making said antibody. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Response to Arguments

Applicant traverses the rejection on the grounds that the specification discloses methods to make antibodies which specifically bind to a polypeptide having any particular amino acid sequence, and that given the amino acid sequence of SEQ ID NO:1, it would be routine to make and to use antibodies which specifically bind to any of the recited variants and fragments of SEQ ID NO:1. However, the examiner notes that there is insufficient direction regarding how to make and use an antibody that specifically binds to any fragment or variant of SEQ ID NO:1, said variants and fragments encompassing a wide range of polypeptides. However, as outlined in the previous office action, the problem of predicting what changes can be tolerated while still maintaining the functional nucleotide phosphorylase activity of the recited variants and fragments of SEQ ID NO:1, based on the sequence data of a single amino acid sequence (SEQ ID NO:1), is complex and well outside the realm of routine experimentation. Applicant contends that no undue experimentation is required because it is a trivial matter to predict the function of antibodies which specifically bind to the recited polypeptides because the function of such polypeptides is to specifically bind to the recited polypeptides. However, it is noted that said function of binding is not a substantial utility, and the rejection is based on the scope of the climed variants and fragments of the polypeptides to which said antibodies specifically bind. Applicant further contends that the office has not provided any reasons why one would doubt that the guidance provided by the instant specification would enable one to make and use the claimed antibodies which specifically bind to the recited variants and fragments of SEQ ID NO:1. However the examiner notes that as outlined in the previous office action that even a single amino acid change in a polypeptide's amino acid sequence can have dramatic effects on its function, and that given the limited working examples and the breadth of the claims, it would take experimentation to predict which changes in SEQ ID NO:1 would maintain the phosphohydrolase activity of said proteins, to which the recited antibodies bind. The scope of the claims must bear a reasonable correlation with the scope of enablement. See In re Fisher, 166 USPQ 19 24 (CCPA 1970).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 46, 48-49, 51, 53-60 and newly added claim 66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

WITHDRAWN in view of Applicant's amendment, A) The instant claims are indefinite because they depend on a cancelled claim (claim 45).

MAINTAINED B) The instant claims are indefinite in the recitation of "at least 90% identical" because the algorithm used to define identity is not disclosed in the specification. The term is only defined in the specification on page 11, by stating that the term identity may substituted for the term homology and refers to a degree of complementarity. It is not clear how an amino acid sequence can have homology to another amino acid sequence.

Response to Arguments

Applicant traverses the rejection on the grounds that one of ordinary skill in the art would understand the meaning of the term "at least 90% identical", and acknowledges that the instant specification states that the term identity may be substituted for the term homology. Applicant contends that the office action errs in requiring an explicit disclosure of the algorithm used to calculate percent identity because it is simple mathematics. However, that there are several programs that use different algorithms to determine homology, and that the specification discloses no specific single algorithm, is grounds for indefiniteness.

Allowable Subject Matter

Claim 65 is allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy M. DeCloux whose telephone number is 703 306-5821. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 703 308-3973. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9306 for regular communications and 703 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0196.

Amy DeCloux, Ph.D.
Patent Examiner,
April 2, 2003

Patrick J. Nolan, Ph.D.
Primary Patent Examiner
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